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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,070	05/22/2001	Nigel Sammes	2354/114	1011

2101 7590 08/14/2003  
BROMBERG & SUNSTEIN LLP  
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BOSTON, MA 02110-1618

EXAMINER

MARTIN, ANGELA J

ART UNIT PAPER NUMBER

1745

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/864,070

Applicant(s)

Sammes et al.

Examiner

Angela J. Martin

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jul 24, 2003
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-86 is/are pending in the application.
- 4a) Of the above, claim(s) 1-31 and 55-86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-37, 40-46, and 54 is/are rejected.
- 7) ☒ Claim(s) 38, 39, and 47-53 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6 6) ☐ Other:

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## DETAILED ACTION

### *Election/Restriction*

1. Applicant's election without traverse of claims 32-54 in Paper No. 9 is acknowledged.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 32-37 and 40-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Ruka et al., U.S. Pat. No. 5,908,713.

Rejection of claims 32-37 and 40-46 drawn to a tubular solid oxide fuel cell.

Ruka et al., teach a tubular solid oxide fuel cell comprising a cathode, an electrolyte, and a tubular anode capable of supporting the fuel cell (col. 6, lines 52-62). It also teaches the anode comprises a mixture of stabilized zirconia and nickel (col. 2, lines 46-57); the electrolyte comprises stabilized zirconia (col. 4, lines 37-42); the cathode comprises a strontia-doped lanthanum manganite (col. 6, lines 55-60). Additionally, it teaches the anode comprises  $\text{CeO}_2$  in a proportion of about 1.5 to about 2 % by weight (col. 2, lines 52-55 and col. 5, lines 40-43); the anode comprises a volume percentage of nickel of between 40% and 50% (Fig. 2). It also teaches

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the anode comprises more than one anode layer, each having a different composition (col. 4, lines 1-14); wherein each of the anode layers comprises a ratio of electrochemically active substance to electrolyte substance, and wherein the ratios are higher for layers that are layered further from a surface of the anode that contacts a fuel gas than for layers that are layered closer to the fuel gas (col. 5, lines 5-24); the electrochemically active substance is nickel and the electrolyte substance is stabilized zirconia (col. 4, lines 15-25); wherein there are two anode layers (Fig. 2).

Thus the claims are anticipated.

4. Claims 32 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Kendall, U.S. Pat. No. 5,827,620.

Rejection of claims 32 and 54 drawn to a tubular solid oxide fuel cell.

Kendall teaches a tubular solid oxide fuel cell comprising a cathode, an electrolyte, and a tubular anode capable of supporting the fuel cell (col.3, lines 16-23). It also teaches the tubular anode can have a non-circular cross-section (col. 5, lines 59-61).

Thus the claims are anticipated.

#### *Allowable Subject Matter*

5. Claims 38, 39, and 47-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for the indication of allowable subject matter:

In claim 38, the Applicant claims a fuel cell as described in independent claim 32, wherein a thickness of the anode comprises over 50% of a total thickness of the anode, the electrolyte, and the cathode; in claim 39, Applicant claims the anode has a thickness in the range of 300  $\mu\text{m}$  to 400  $\mu\text{m}$ . In claim 47, Applicant claims a fuel cell as described in dependent claim 44, wherein there are more than two anode layers. In claim 48, the Applicant claims a fuel cell as described in dependent claim 43, wherein the more than one anode layers comprise a thicker support layer and a thinner active layer, the support layer being in contact with a fuel gas. Claims 49-53 are dependent on claim 48.

\* The prior art of record does not teach a thickness of the anode comprises over 50% of a total thickness of the anode, the electrolyte, and the cathode; the anode has a thickness in the range of 300  $\mu\text{m}$  to 400  $\mu\text{m}$ . The prior art does not suggest there are more than two anode layers. The prior art of record does not disclose the more than one anode layers comprise a thicker support layer and a thinner active layer, the support layer being in contact with a fuel gas.

*Examiner Correspondence*

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Angela J. Martin whose telephone number is (703) 305-0586. The Examiner can normally be reached on Monday - Friday from 8:00am to 4:00pm.

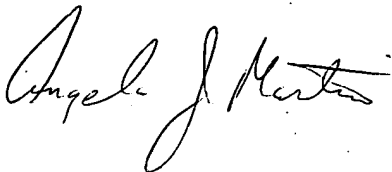
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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Patrick Ryan, can be reached at (703) 308-2383.

In order to transmit an official fax/non-final, the number is (703) 872-9310. In order to transmit an official fax/after final, the number is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

AJM

A handwritten signature in cursive script, appearing to read "Angela J. Martin".